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TABLE OF CONTENTS

Running head: DETERMINANTS OF SOCIAL COMPETENCE

Children's Early Family Experiences, Attribution Tendencies, and Social Competence

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Abstract

With children's acquisition of social competence being central to healthy development and adjustment (Roff, Sells, & Golden, 1972; Kupersmidt, Coie, & Dodge, 1990), the purpose of this review was to explore children's attribution tendencies and children's early family experiences as determinants of children's social competence. The research reviewed found that parenting style and practices (as indices of children's early family experiences) were related to children's social competence. In particular, the content of parent-child communication (such as parent-child talk about others' intentions) was found to be an important predictor of children's social competence, as was the frequency of parent-child communication. The research reviewed also demonstrated a relationship between children's attribution tendencies and their social competence, and a link between parenting style (such as harsh and abusive parenting), children's attribution tendencies, and children's social competence. Despite these findings, no research studies have attempted to link specific socialization practices of parenting, such as parent-child communication, to children's attribution tendencies and children's social competence. The investigation of this relationship is important as being able to identify specific socialization mechanisms that may influence children's attribution tendencies (and therefore their social competence), can help psychologists develop programs for children that aid in the prevention and intervention of social maladjustment. Thus, investigating the relationship between parent-child communication, children's attribution tendencies, and children's social competence is an important avenue for future research.

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Children's Early Family Experiences, Attribution Tendencies, and Social Competence

Children's development of social competence has for many years been recognized as one of the most significant psychosocial tasks of childhood (Asher & Gottman, 1981; Coie & Dodge, 1988). The emphasis that psychologists have placed on the quality of children's peer relationships has been largely motivated by the longitudinal evidence suggesting a link between children's social adjustment in early childhood and later life difficulties (Parker & Asher, 1987). In particular, children who are socially maladjusted and have poor peer relationships are at a heightened risk for developing a wide range of mental health problems (Roff, Sells, & Golden, 1972), and adjustment problems in adolescence and adulthood (Kupersmidt, Coie, & Dodge, 1990). This awareness of the importance of children having quality peer relationships has provoked researchers interests in the antecedents and origins of children's social competence.

Research that has explored the influences of children's social competence has progressed along two distinct research traditions. One tradition involves looking at early family experiences, particularly parenting style and parent-child interactions, as antecedents of children's social adjustment. A large proportion of this research concerning children's social adjustment and peer relationships has focused on general qualities of parent-child interaction such as warmth, and responsiveness (Laird, Pettit, Mize, Brown, & Lindsey, 1994). However, the smaller body of research that has focused on more specific qualities of parent-child interaction have shown increasing evidence that *what* parents say (that is, the content of parent-child conversations about peer relationships) may be equally important in the development of children's competence in

peer relationships as *how* parents talk (that is, the style of parent-child interactions) to their children (Pettit & Mize, 1993).

The other research tradition involves looking at how social information processing patterns influence children's social adjustment. Crick and Dodge (1994) developed a social information processing model, which posits that children's social behaviour is determined by the way children process social information. How children process social information, in particular, how children interpret others' intentions has been found to be integral as to whether children are socially competent or socially incompetent (Crick & Dodge, 1994). A large body of research using the theoretical framework of Crick and Dodge's social information processing model has demonstrated that socially maladjusted or incompetent children attribute more hostile intentions to their peers compared to better adjusted children (e.g., Feldman & Dodge, 1987; Guerra & Slaby, 1989; Dodge, Price, Bachorowski, & Newman, 1990).

To fully appreciate the impact that both parent-child communication and social information processing have on children's social adjustment this review will present a broad range of research from both the social information processing literature and the literature concerning early family experiences, and in particular parent-child communication, as antecedents of children's social adjustment. This review will start by introducing the nature of the relationship between children's early family experiences and their social adjustment, and the pathways of parent-child communication to children's social competence that have been mapped out to date. Second, the social information processing model will be presented, along with literature on children's hostile attribution biases, and literature examining the

links between early family experience, children's attribution tendencies, and children's social competence.

Early family experience, Parent-child communication, and Children's Social Competence

The relationship between children's early family experiences and their social competence is one that has long been established. One aspect of early family experiences that have figured most prominently in the development of children's social competence is parenting behaviours. For example, it has been shown that parental negativity (for example, low warmth, and high physical and verbal punishment) leads to children's social maladjustment by intensifying early signs of aggression (Denham et al., 2000; Rubin, Burgess, Dwyer, & Hastings, 2003). Conversely, positive parenting styles such as high parental warmth, which refers to the extent that parents demonstrate affection and interest toward their children, and parental responsiveness, which refers to how receptive parents are towards their children (Belsky, 1990; Pettit, Harrist, Bates, & Dodge, 1991) have shown to be prominent parenting variables that predict children's socially competent behaviour with peers. These findings suggest that the style of parent-child interactions may convey to children social messages about the ways that relationships work (Laird et al., 1994). Although this research on broad parental qualities such as parenting style is important and contributes to the documentation of the relationship between broad parenting behaviours and child behavioural outcomes, it does not delineate the specific socialization practices of parenting within which children acquire social competence.

Specific socialization practices of parenting refer to parents' direct interventions that are carried out to attain particular socialization goals, such as the promotion and

development of their children's social competence (Mize & Pettit, 1997). Parenting practices may include teaching, guiding, giving advice, and coaching children in social contexts. There have been far fewer empirical efforts to discover the effects of these parenting practices on children's social competence than the effects of parenting style on children's social competence. However, the research efforts that have investigated parental practices have emphasized the role that content of parent-child communication plays as a socialization medium that provides children with socialization opportunities, and is associated with children's social competence (Pettit, Brown, Mize, & Lindsey, 1998).

Research examining the relationship between the content of parent-child communication as a socialization medium and children's social competence has progressed along several paths. The first path has focused on references to emotional content in parent-child communication. Evidence within this line of research suggests that parent-child conversations, which emphasize and makes reference to emotions, teach children about feelings and help children to develop an increased sensitivity to other's feeling states and thus engage in more socially competent behaviour (Dunn, Bretherton, & Munn, 1987; Dunn, Brown, & Beardsall, 1991; Eisenberg, et al., 1992; Gottman, Katz, & Hooven, 1996). For example, Dunn, Brown, and Beardsall (1991) investigated the relationship between individual differences in family talk about emotions in the preschool years and later differences in children's ability to grasp what others may be feeling, which is predictive of children's social competence. They found that early family talk about emotions was predictive of later understanding of emotions even after controlling for children's verbal ability. That is, those children who grew up in families that

discussed a wider range of feeling states and discussed the causal content of feeling states (or the relationship between people's feeling states and why they have occurred) more frequently were better able to later (at six years old) understand and make judgments about others emotions, than children who grew up in families in which these aspects of emotion talk were less frequently present.

In a similar study, Gottman, Katz, and Hooven (1996) examined the relationship between parents' reports of what and how much they communicate with their children (at five years of age) about emotional experiences, and teachers' assessment of these children's social adjustment at eight years of age. The study found that parents who frequently engaged in emotion-coaching with their children at five years of age tended to have children who were rated by their teachers at eight years of age as more socially competent than children whose parents engaged less frequently in emotion-coaching with them at five years of age. These studies that have focused on the relationship between the emotional content of parent-child discourse and children's social competence clearly demonstrate that children are being socialized in the context of conversations that they have with their parents regarding emotions. This in addition emphasizes the importance of further investigating the content of parent-child communication. However, these studies have only focused on one aspect of parent-child conversations, that being emotion talk.

The second path of research that has investigated the content of parent-child communication and children's social competence has looked at the guidance and assistance that parents give their children in peer interaction contexts. Just as in the research on emotion focused parent-child communication, research emphasizing parent-

child communication in the context of children's peer interactions has also shown to be related to children's social competence. For example, Finnie and Russell (1988) investigated whether differences in how mothers' assisted their children in peer relationships was related to differences in children's social skills. The authors based this particular investigation on the notion that children might acquire their social competency from their mothers. They found that mothers of high social status (popular) children were more likely to help their children understand social situations and the effects of their behaviour on others than those mothers of low social status (unpopular) children, in response to hypothetical scenarios in which mothers were expected to give their children advice and guidance (for example in resolving conflict, and initiating friendship). The authors suggested that individual differences in children's social competence may be mediated by mothers directly coaching or instructing their children in social situations.

A follow up study by Finnie and Russell (1990) also found that mothers of popular children used more skillful group-oriented strategies and instructions when guiding their children in social situations than mothers of unpopular children. This result supports their previous study in which mothers of popular children gave more quality instructions and coaching to their children in social situations than mothers of children that were unpopular. These two studies by Finnie and Russell suggest that the quality of the content of mother-child conversations regarding peer interactions (particularly giving instructions and coaching) is vital to children's social competence. However, both studies by Finnie and Russell, and the previously reviewed research on the emotional content of parent-child communication are limited in their findings, as they did not control for the effects of parenting style (such as parental warmth and responsiveness) on children's social

competence. That is, these studies did not control for the possibility that these intentional parenting practices such as giving instructions, and coaching may be a marker of competent parenting, and thus may not contribute any additional benefits to children's social competence beyond what is gained by children being in a good quality parent-child relationship characterized by high warmth and responsiveness (Mize & Pettit, 1997).

A study by Mize and Pettit (1997) further investigated not only the role of mothers' social coaching, but also addressed the issue of whether the parent-child relationship style (such as harsh or warm parenting) was more or less significant as a transmission medium for the acquisition of children's social competence than the message (content) contained in specific episodes of coaching. Social coaching in this particular study was assessed by two measures. The first measure was termed *social framing*, which referred to how mother's explained other people's intentions to their children when presented with hypothetical scenarios that depicted negative outcomes for their children in peer-interaction situations. Mothers' social framing of the negative outcomes was considered by Mize and Pettit (1997) to be important to children's social competence, given that children who are socially maladjusted display deficits or biases in their interpretation of peers' behaviour (Dodge, Pettit, McClaskey, & Brown, 1986), and that evidence suggests that mothers' discourse and guidance regarding peer relationships is related to socially competent behaviour in children (Finnie & Russell, 1988; Finnie & Russell, 1990). The second measure of social coaching assessed the extent to which mothers' suggested prosocial strategies for their children in responding to the conflict presented in the hypothetical social situations. Parenting style in this study referred to how responsive

mothers were to their children, and how warm mothers were towards their children (demonstrated by how affectionate and positive mothers were with their children).

Mize and Pettit (1997) found that mothers who explained (or socially framed) other people's intentions to their children in a way that was non-hostile (for example, 'they probably accidentally did that') had children who were more socially competent than those parents who explained other people's intentions as deliberate (for example, 'he probably did it because he is mean'). In addition, they found that mothers who endorsed prosocial strategies in conflict situations involving peers (such as finding other peers to play with) had children who were more socially competent compared with mothers who endorsed negative social strategies (such as suggesting being aggressive to resolve the conflict). The authors suggested that these two findings may indicate that children benefit when mothers give emphasis to the *good* in social relationships, and provide guidance and support for cooperative behaviour in peer situations that involve conflict and negative outcomes for the children involved. Additionally, it was found that mother's social coaching predicted children's social competence above and beyond that of the parenting styles tested. This demonstrates that the content or message that mothers convey is an important medium in which children acquire social competence.

In a related study, Laird et al. (1994) assessed whether both the content and the frequency of naturally occurring parent-child conversations about peers were predictive of children's social competence. The frequency of naturally occurring parent-child conversations about children's peers was assessed by asking mothers to recall how many conversations they had with their children in the past 48 hours concerning their children's relationship with peers; whilst the content was assessed by asking mothers to describe

these conversations that they had recalled. They found that the more frequently mothers talked to their children about their peer interactions the more socially competent their children were. They also found that the frequency of conversations containing mother's giving their children advice predicted children's social competence beyond the mere frequency of mother-child talk about peers. The authors suggested that advice giving may be an important component of mother-child conversations. This finding, along with Mize and Pettit's (1997) finding, may also suggest that there is an addititive effect of the frequency of parent-child communication about peer interactions and parent's social coaching on children's social competence. This suggestion however has yet to be directly tested using more specific aspects of social coaching, such as social framing.

The basic principle underlying these studies is parents facilitate or limit their children's acquisition of behavioural and social skills via the particular content of parent-child communication (such as giving advice or talking about others intentions), and the frequency of such parent-child communication regarding socially relevant issues. However, these studies have not assessed children's social information processing (in particular how children interpret others intentions), which has also been conceived as a proximal factor in the development of children's social competence. In particular, it has been proposed that children's social information processing style may serve as a mechanism in which repeated early family experiences and interactions with parents become linked with children's later social adjustment (Pettit, Polaha, & Mize, 2001).

Crick & Dodge's (1994) Social-Information Processing Model

Social-information processing has been a topic that has been intensively researched in recent years, as psychologists search for the perceptual and mental processes that

underlie children's social maladjustment. In particular, Crick and Dodge's (1994) social-information processing model has provided the most comprehensive perspective on the link between children's social-cognitions and children's social adjustment.

Crick and Dodge's (1994) social information processing model postulates that children's social behaviour (and consequently social adjustment) is a product of a sequence of steps of online processing. There are five sequential steps in the information-processing model originally proposed by Dodge (1980). The first step is encoding, which requires children to focus on and process particular social stimuli. The second step involves children interpreting and making sense of these social stimuli. Crick and Dodge (1994) hypothesized that during encoding and interpretation of the social stimulus, children only focus on certain cues in the social context, and based on the cues that children focus on, an interpretation of the situation is constructed. The third step involves children generating a variety of responses to the social cue, whilst the fourth step requires that children evaluate and select a favored response. The final step involves children enacting the favored and chosen response. Crick and Dodge (1994) state that deficits or biases encountered in one or more of these five steps will result in maladjusted (aggressive) behaviour.

The one step in the information-processing model that has arguably received the most attention in the literature is the interpretation of social cues and events. The research has specifically focused on one independent process of interpretation, that being children's inferences or attributions regarding the intent of others. The reason that children's attributions of intent have become a central component in the social information processing literature is that how children interpret another's intentions seems

to strongly differentiate maladjusted and well-adjusted children. For example, aggressive (socially incompetent) children are more likely to interpret others intentions as threatening or hostile in situations in which they have been negatively provoked; whereas socially competent children are more likely to interpret others intentions as benign in situations in which they have been negatively provoked.

Most studies that have assessed children's attribution tendencies (within the social-information processing framework) have done so by presenting the child with hypothetical scenarios in which another person (the antagonist) negatively provokes the child in such a way that the intent of the antagonist is made unclear to the child. Hypothetical, generalized scenarios are used so that children cannot rely on contextual knowledge (such as the antagonist is a notorious bully) to make attributions of intent, and thus children must rely on generalized response tendencies based on their previous experiences to make an interpretation of intent (Pettit et al., 2001). These studies that have assessed children's attribution tendencies using the social information processing framework have demonstrated that maladjusted (aggressive) children exhibit hostile attribution biases in response to ambiguous provocation situations; that is, maladjusted children attribute more hostile intentions to the antagonist in the hypothetical scenarios compared to non-aggressive children (Dodge, 1980; Dodge & Frame, 1982; Feldman & Dodge, 1987; Guerra & Slaby, 1989; Milich & Dodge, 1984).

This relationship between children's attribution tendencies and social adjustment has also been found in a study using actual situations (instead of hypothetical scenarios) (Steinberg & Dodge, 1983). Steinberg and Dodge (1983) set up an ambiguous provocation situation in which it appeared that a peer had knocked down a block structure

that the participant had built. As in the studies using hypothetical scenarios, aggressive children attributed hostile intent to the antagonist more than their non-aggressive counterparts. This finding provides ecological validity of intent attributions. Although these studies have clearly demonstrated links between attributional processes and social maladjustment, the question concerning social-information processes and its relation to social competence in a general population has remained relatively unexplored as these previous studies on children's attribution tendencies have been concerned with the differences between normal children and extreme groups of maladjusted children.

Whilst it is important to understand the social-information processing mechanisms in extreme groups (such as maladjusted versus well-adjusted children), it is equally important to identify the social information processing mechanisms that exist in a general population. In a study of the attributional tendencies of a general sample of 884 children, Runions and Keating (2005) found that those preschool children who consistently attributed benign intentions to ambiguous situations with negative outcomes, had fewer externalizing tendencies in grade one, than those children who attributed hostile intentions. That is, those children who showed hostile attribution biases in preschool had higher levels of aggressive tendencies (as assessed by mothers completing the Child Behaviour Check List which comprised of aggressive behaviour scales, and teachers reports of children's externalizing tendencies). This study provides evidence of the relationship between social information-processing patterns and social competence in a general sample of the population.

A meta-analysis by DeCastro, Veerman, Koops, Bosch, and Monshouwer (2002) further examined children's attribution tendencies in general populations by conducting a

meta-analytic review of studies on children's hostile attribution tendencies and aggressive behaviour, and assessing the differences in effect sizes between general population designs versus extreme group designs in these reviewed studies. They found that effects sizes for general population samples were significantly smaller than studies that compared aggressive and non-aggressive children. That is, the relationship between children's attribution tendencies and aggressive behaviour in studies that used a general population was smaller in magnitude in comparison to the studies in which children's attribution tendencies have been researched under extreme group conditions. This may be due to the fact that extreme group designs elicit stronger correlations than what would be found in the general population (Dodge & Price, 1994).

What all these reviewed studies investigating attribution tendencies in children tell us is that socially maladjusted children attribute more hostile intentions to their peers than do more socially competent children. However, as most research on social-information processing has focused on the relationship between children's behaviour and children's attribution tendencies, there have been few studies that have focused on the developmental antecedents of these tendencies.

Developmental Antecedents of Children's Attribution Tendencies and Social Competence

Most studies that have looked at the development of children's attribution tendencies have focused on the contexts that parents create for their children. In particular it has been found that parents' use of harsh discipline and maternal controlling behaviour are predictive of children's hostile attribution tendencies (Gomez, Gomez, DeMello, & Tallent, 2001). That is, children of parents who use harsh discipline and other negative parenting practices attribute more hostile intentions to others than children of parents who

use warm and positive parenting practices. The influence of children's exposure to parent's negative attitudes and behaviours on children's attribution tendencies may be most important to children who are just starting to comprehend that people's intentions can cause their actions (Runions & Keating, 2005).

Pears and Moses (2003) suggest that at approximately preschool age (between 4-5 years old) children start to comprehend that people's intentions can cause their actions. Thus it is important for researchers to assess the determinants of attribution tendencies in 4-5 year olds so that researchers can provide recommendations for preventing the development of maladjusted attribution tendencies in children. However, this age group has been neglected in studies that have looked at the determinants of children's attribution tendencies. Because of the importance of determining the influences of preschool children's attribution tendencies and the fact that parenting behaviours and qualities have been linked to both children's social competence (as discussed earlier in the review) and children's attribution tendencies (which has also been linked to social competence), researchers have become increasingly interested in whether preschool aged children's attribution tendencies may help to account for the link between early family experiences and children's social competence.

One of the earliest studies that has demonstrated the utility of attribution tendencies in preschool aged children as a possible mediator of the relationship between children's early family experiences and individual differences in children's social competence was by Pettit, Dodge, and Brown (1988). In Pettit's et al. (1988) study family experience was assessed via interview with the mothers, children's social-information processing patterns were assessed with hypothetical videotaped and orally presented vignettes, and children's

social competence was assessed via teaching and peer ratings. They found that preschool aged children's incompetent behaviour (namely aggressiveness) was associated with deviant and biased social-information processing patterns, and with mother's reported use of harsh discipline.

In addition, Dodge, Bates, and Pettit (1990) assessed 300 five year old children's processing, family experiences, and social competence. They found that children who were identified as physically maltreated had significantly higher aggression scores and were more biased towards attributing hostile intent to hypothetical social problems than children who were not maltreated. They also found that when social information processing scores were controlled in a regression analysis, maltreatment was no longer a significant predictor of children's social competence. These findings suggest that harsh and abusive early family experiences influence children's development of aggressive socially incompetent behaviour by altering the ways in which children process social information. However, this must be interpreted with some caution as both these studies are correlational, and thus it can only be inferred that early experience, attributional tendencies, and social competence co-vary. Nevertheless, both these studies establish a link between early family experiences (particularly parental behaviours), children's attributional tendencies, and children's social competence. Albeit, a caveat of both Dodge et al. (1990) and Pettit et al. (1988) studies is that they are both limited in their scope of parenting, as these studies only focused on a few parental predictors (namely parent's harsh discipline and abusive practices). This is problematic as parenting is a multidimensional concept.

Runions and Keating (2005) attempted to resolve this limitation by examining preschool aged children's attribution tendencies and social competence in relation to several parental predictors. Although they assessed both maternal authoritarian attitudes and levels of maternal education as parental predictors, only low levels of maternal educational achievement was found to be a significant predictor of children's hostile attribution scores. In addition, they found that preschool children's hostile attribution scores were significant predictors of their social competence. Specifically, preschool children with higher hostile attribution scores were rated by their mothers and teachers as more aggressive. These results, like Pettit's et al. (1988) study, and Dodge's et al. (1990) study, suggest a link between parenting, children's attribution tendencies, and children's social competence. However, as Runions and Keating's (2005) study was also correlational the direction of the causal links between parenting, children's attributions, and children's social competence cannot be fully addressed.

Despite this limitation, Runions and Keating's study demonstrated that mother's educational levels are an important antecedent of children's attributional tendencies and social competence. One explanation suggested by Runions and Keating (2005) is that mothers who are better educated may be more likely to discuss with their child other people's intentions. However, the content of parent-child communication was not addressed in their study, and thus this explanation is speculative. As previously noted, the content of parent-child communication has been linked to children's social competence, but as yet no studies have attempted to link the content of parent-child communication, particularly parent-child communication concerning other people's intentions, with

children's attribution tendencies and social competence. This would be an important avenue for future research to investigate.

Pettit's et al. (1988), Dodge's et al. (1990), and Runions and Keating's (2005) studies investigating the antecedents of preschool aged children's attribution tendencies may have implications for the prevention of adjustment problems in children. For example, the preschool years may be an important time in the development of characteristic ways of understanding other people's intentions (Runions & Keating, 2005), and all three studies found a relationship between preschool children's attribution tendencies and their social competence. This may suggest that a universal preschool-age program that teaches children about intentions, and the disjunction between intention and action may be beneficial for children in the prevention of maladjusted attribution tendencies. Albeit, to develop preventative programs to support children's healthy adjustment and development, the mechanics of how early family experiences influence and are linked to children's attribution tendencies and social competence must be considered.

Mechanisms Linking Parenting Behaviour, Children's Attribution Tendencies, & Children's Social Competence

A mechanism by which parenting behaviours and practices influence and are linked with children's attributional style, and children's social competence are latent structures as proposed by the reformulated social information-processing model (Crick & Dodge, 1994). The integration of latent structures with Dodge's (1980) original online information processing model has meant that the 'why' issue of particular social behaviours occurring can be addressed more effectively (Pettit et al., 2001). Latent

structures are enduring mental processes that are created by people's past experiences, which in turn, influences their future social information processing, type of attributions made, and behaviour (Crick & Dodge, 1994). Specifically, latent structures are referred to as constructs of social concepts that facilitate one's understanding of social events and guide attributions and behaviours (Crick & Dodge, 1994).

People vary in the types and accessibility of their social constructs, and for some people aggressive and hostile constructs are more easily accessed than other constructs (such as kindness) in social situations (Pettit et al., 2001). Social constructs become chronically accessible in people due to them repeatedly experiencing particular social behaviours (such as aggressiveness or kindness) (Pettit et al., 2001). That is, particular constructs become more accessible than others through frequent and regular experiences of specific social behaviours (Pettit et al., 2001). Thus children who live in a household in which blame is habitually assigned to others, and in which aggression and harsh discipline are prevalent may develop a chronically accessible construct for aggressiveness (Graham & Hudley, 1994). Specifically, these chronically accessible constructs (whether they be aggressive or kind) are likely to be used to guide inferences and interpretations of social events in situations where the intentions of others are both clear and ambiguous as these constructs are the most easily accessible (Graham & Hudley, 1994). Thus for aggressive children whose early family experience involved constant exposure to authoritarian parental attitudes and harsh discipline, hostile intent constructs may be the most easily accessed constructs used to interpret other's behaviour in situations in which these children have been negatively provoked.

In applying this concept of chronically accessible constructs to the findings from Mize and Pettit's (1997) study, and to Runions and Keating's (2005) suggestion that children who do not display hostile attribution biases may have parents who speak more to them about others' intentions, the link between parenting, children's attribution tendencies, and their social competence can be demonstrated more wholly. Recall that in Mize and Pettit's (1997) study, parents who explained other people's intentions to their children in a way that was non-hostile had children who were more socially competent than parents who explained other people's intentions as deliberate. This finding indicates an indirect relationship between children's attribution tendencies and parent-child conversations about others' intentions as children who are not socially competent have been found to display hostile attribution biases in their interpretation of others' behaviour (Dodge et al., 1986).

Runions and Keating's (2005) suggestion combined with Mize and Pettit's (1997) findings, and the concept of chronically accessible constructs may allow one to make the following inference: That children whose parent's frequently make reference to others' behaviours as undesirable and purposeful rather than unintended, will be more likely to attribute hostile intent to others, as this construct for hostile intent is more accessible to these children due to their repeated socialization experiences concerning this particular social behaviour. In contrast, those children whose socialization experiences do not involve their parent's frequently explaining and concluding that other people's actions (especially in ambiguous social situations) are derived from hostile intentions, and instead explain that others' actions can be accidental are going to be less likely to use a

construct for hostile intent to interpret others' actions as the construct for hostile intent is a less salient feature of their early social experiences.

Although this explains how the content and frequency of parent-child communication concerning parents' explanations of other peoples' intentions may influence children's attributions tendencies (and therefore their social competence), this link has not been directly tested. Indeed, it is evident from exploring the concept of latent structures that the link between parent-child communication about other people's intentions and children's attribution tendencies needs to be explored in future research to further our knowledge regarding the determinants of children's attribution tendencies and children's social competence. What is also evident from both the review of chronically accessible structures and the point that the preschool years may be a critical time in the development of characteristic ways of understanding other people's intentions (Runions & Keating, 2005), is that preschool aged children may also be at an age where they have not yet developed chronically accessible constructs. Therefore, it is imperative for future research to specifically examine the link between parent-child communication concerning the explanation of other people's intentions and preschool aged children's attribution tendencies, so that particular socialization experiences that influence the development of children's attribution tendencies can be identified so as effective family-based preventative programs for children's social maladjustment can be developed. Developing preventative programs that address children's adjustment problems are extremely important and are needed, as prevention is more effective in tackling the scope of the problem than intervention (Wolfe, Wekerle, & Scott, 1997).

Conclusion

The current review presented a broad range of research that explored children's early family experience, attribution tendencies, and their social competence. Specifically, with children's acquisition of social competence being central to healthy development and adjustment (Roff, Sells, & Golden, 1972; Kupersmidt, Coie, & Dodge, 1990), the purpose of this review was to explore children's attribution tendencies and children's early family experiences as influences of children's social competence.

The reviewed research that has investigated the determinants of children's social competence, has showed the presence of a well established relationship between children's early family experience's and children's social competence. In particular, the content of parent-child communication (such as parent-child talk about others' intentions) was found to be an important predictor of children's social competence (e.g. Mize & Pettit, 1997), as was the frequency of parent-child communication (e.g. Laird et al., 1994). Additionally, the research reviewed has also demonstrated a well established relationship between children's attribution tendencies and children's social competence. Specifically, studies investigating attribution tendencies in children, demonstrate that socially maladjusted children attribute more hostile intentions to their peers than do more socially competent children (Dodge, 1980; Dodge & Frame, 1982; Feldman & Dodge, 1987; Guerra & Slaby, 1989; Milich & Dodge, 1984).

With research evidence from the reviewed literature suggesting that both early family experience and attribution tendencies play key roles in the development of children's social competence, researchers have attempted to investigate the nature of the link between children's early family experiences, attribution tendencies, and social

competence. The research that has assessed the relationship between these three variables have done so by measuring early family experience using indexes of parenting style, such as harsh and abusive parenting (Pettit et al., 1988; Dodge et al., 1990; Runions & Keating, 2005). The results from these studies suggest that there is a relationship between parenting style, attributional tendencies, and social competence. This relationship between children's attribution tendencies, parenting style (as a measure of early family experiences), and children's social competence has meant that the examination of the development of children's social information processing, and early family experiences are important in providing insights to inform psychologists of effective prevention and intervention efforts for children's social maladjustment.

However, despite these findings and Pettit and Mize's (1997) finding that content of parent-child communication predicted children's social competence over and above parenting style, there have been no published research studies that have attempted to link parent-child communication, children's attribution tendencies, and children's social competence. It is important for researchers to understand the particular socialization mechanisms, such as the content of parent-child communication, and the frequency of parent-child communication, that may be associated with children's well-adjusted attribution tendencies. This is due to the point that understanding such socialization mechanisms that may influence children's attribution tendencies is vital for researchers in being able to provide parents and families with appropriate guidance and information to foster children's socially competent behaviour and adjustment. Therefore it is imperative for future research to explore the relationship between the content (particularly parent's

social framing) and frequency of parent-child communication concerning peer relationships, children's attribution tendencies, and children's social competence.

It would also be beneficial for future research to look more at preschool children and their attribution tendencies and their salient early family experiences that may influence their social competence. This is because preschoolers may be at an age where attributional tendencies are starting to form (Runions & Keating, 2005). Thus, if researchers are aware of the socialization processes that contribute to well adjusted attribution tendencies and social competence in children that have not yet formed enduring attribution styles, researchers can provide practical information for the prevention of social maladjustment rather than its intervention once it arises.

In conclusion, research evidence suggests that early family experiences, especially parent-child communication, along with children's attribution tendencies influence children's level of social competence. Future research should be directed at linking specific parenting practices such as parent's social framing and the frequency of their communication with their children, with preschool children's attribution tendencies and their social competence to get a clearer picture of the social and social cognitive determinants of children's behavioural adjustment.

References

Asher, S. R., & Gottman, J. M. (1981). *The development of children's friendships.* New York: Cambridge University Press.

Belsky, J. (1990). Parental and non-parental child care and children's socioemotional development: A decade in review. *Journal of Marriage and the Family, 52,* 885-903.

Coie, J. D., & Dodge, K. A. (1988). Multiple sources of data on social behavior and social status in the school: A cross-age comparison. *Child Development, 59,* 815-829.

Crick, N., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms of children's social adjustment. *Psychological Bulletin, 115,* 74-101.

DeCastro, B. O., Veerman, J. W., Koops, W., Bosch, J. D., & Monshouwer, H. J. (2002). Hostile attributions of intent and aggressive behaviour: A meta-analysis. *Child Development, 73,* 916-934.

Denham, S. A., Workman, E., Cole, P. M., Weissbrod, C., Kendziora, K. T., & Zahn-Waxler, C. (2000). Prediction of externalizing behaviour problems from early to middle childhood: The role of parental socialization and emotion expression. *Development and Psychopathology, 12,* 23-45.

Dodge, K. A. (1980). Social cognition and children's aggressive behaviour. *Child Development, 51,* 162-170.

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250,* 1678-1683.

Dodge, K. A., & Frame, C. L. (1982). Social cognitive deficits and biases in aggressive boys. *Child Development, 53,* 620-635.

Dodge, K. A., Pettit, G. S., McClaskey, C., & Brown, M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 51,* 58-70.

Dodge, K. A., & Price, J. M. (1994). On the relation between social information processing and socially competent behaviour in early school-aged children. *Child Development, 65,* 1385-1397.

Dodge, K. A., Price, J. M., Bachorowski, J. A., & Newman, J. P. (1990). Hostile attributional biases in severely aggressive adolescents. *Journal of Abnormal Psychology, 99,* 385-392.

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23,* 132-139.

Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's understanding of others' emotions. *Child Development, 27,* 448-455.

Eisenberg, N., Fabes, R. A., Carlo, G., Troyer, D., Speer, A. L., Karbon, M., & Switzer, G. (1992). The relations of maternal practices and characteristics to children's vicarious emotional responsiveness. *Child Development, 63,* 583-602.

Feldman, E., & Dodge, K. A. (1987). Social information processing and sociometric status: Sex, age, and situational effects. *Journal of Abnormal Child Psychology, 15,* 211-227.

Finnie, V., & Russell, A. (1988). Preschool children's social status and their mother's behaviour and knowledge in the supervisory role. *Developmental Psychology, 24,*

789-801.

Finnie, V., & Russell, A. (1990). Preschool children's social status and maternal instructions to assist group entry. *Developmental Psychology, 26,* 603-611.

Gomez, R., Gomez, A., DeMello, L., & Tallent, R. (2001). Perceived maternal control and support: Effects on hostile biased social information processing and aggression among clinic-referred children with high aggression. *Journal of Child Psychology, Psychiatry and Allied Disciplines, 42,* 513-522.

Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10,* 243-268.

Guerra, N. G., & Slaby, R. G. (1989). Evaluative factors in social problem solving by aggressive boys. *Journal of Abnormal Child Psychology, 17,* 277-289.

Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of poor peer relationships in the development of disorder. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 274-305). Cambridge, UK: Cambridge University Press.

Laird, R. D., Pettit, G. S., Mize, J., Brown, E., & Lindsey, E. (1994). Mother-child conversations about peers: Contributions to competence. *Family Relations, 43,* 425-432.

Milich, R., & Dodge, K. A. (1984). Social information processing patterns in child psychiatric populations. *Journal of Abnormal Child Psychology, 12,* 171-189.

Mize, J., & Pettit, G. S. (1997). Mother's social coaching, mother-child relationship style, and children's peer competence: Is the medium the message? *Child Development, 68,* 312-332.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low accepted children at risk? *Psychological Bulletin, 102,* 357-389.

Pears, K. C., & Moses, L. J. (2003). Demographics, parenting, and theory of mind in preschool children. *Social Development, 12,* 1-19.

Pettit, G. S., Brown, E. G., Mize, J., & Lindsey, E. (1998). Mothers' and fathers' socializing behaviours in three contexts: Links with children's social competence. *Merrill-Palmer Quarterly, 44,* 173-193.

Pettit, G. S., Dodge, K. A., & Brown, M. (1988). Early family experience, social problem solving patterns, and children's social competence. *Child Development, 59,* 107-120.

Pettit, G. S., Harrist, A. W., Bates, J. E., & Dodge, K. A. (1991). Family interaction, social cognition and children's subsequent relations with peers at kindergarten. *Journal of Social and Personal Relationships, 8,* 383-402.

Pettit, G. S., & Mize, J. (1993). Substance and style: Understanding ways in which parents teach children about social relationships. In S. Duck (Ed.). *Learning about relationships*, pp. 118-151. London: Sage.

Pettit, G. S., Polaha, J. A., & Mize, J. (2001). Perceptual and attributional processes in aggression and conduct problems. In J. Hill & B. Maughan (Eds.), *Conduct disorders in childhood and adolescence* (pp. 292-319). New York: Cambridge University Press.

Roff, M., Sells, S. B., & Golden, M. M. (1972). *Social adjustment and personality development in children.* Minneapolis: University of Minnesota Press.

Rubin, K. H., Burgess, K. B., Dwyer, K. M., & Hastings, P. D. (2003). Predicting

preschoolers' externalizing behaviours from toddler temperament, conflict, and maternal negativity. *Developmental Psychology, 39,* 1614-1629.

Runions, K. C., & Keating, D. P. (2005). The early development of social information processing: Family antecedents and behavioural consequents. Manuscript submitted for publication.

Steinberg, M. S., & Dodge, K. A. (1983). Attributional bias in aggressive adolescent boys and girls. *Journal of Social and Clinical Psychology, 1,* 312-321.

Wolfe, D. A., Wekerle, C., & Scott, K. (1997). *Alternatives to violence: Empowering Youth to develop healthy relationships.* Thousand Oaks, CA: Sage Publications.

Running head: CHILDREN'S ATTRIBUTIONS

Mothers' Social Framing, Frequency of Mother-Child Conversations about Peers, and Preschool aged Children's Attribution Tendencies

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Mothers' Social Framing, Frequency of Mother-Child Conversations about Peers, and Preschool aged Children's Attribution Tendencies

Abstract

In an attempt to fill a gap in the social information processing literature, the present study investigated whether mother-child communication is related to children's attribution tendencies in ambiguous, negative social situations. Measures of mothers' social framing, frequency of mother-child conversations about peers, and children's hostile attributions of intent were scored for 45 mother-child dyads. The results showed that mothers' social framing was a key predictor of preschool children's attribution tendencies. However, frequency of mother-child conversations about peers was not a significant predictor of preschool children's attribution tendencies. Overall, the results of this study provide support for mothers' social framing as a specific socialization mechanism that is associated with children's attribution tendencies. However, due to the sample limitations and correlational design, these results are preliminary. Therefore, the present results offer preliminary findings for future research endeavors, and demonstrate the importance of future research investigating the role of content of mother-child communication in children's attribution tendencies with larger and more diverse samples so that these results can have implications for developing effective intervention and prevention programs for children's social maladjustment.

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Mothers' Social Framing, Frequency of Mother-Child Conversations about Peers, and Preschool aged Children's Attribution Tendencies

Children's perceptions toward the occurrence of social events have been a topic of central interest to psychologists in recent years. This interest has largely been provoked by Crick and Dodge's social information processing model (1994), which posits that children's social behaviour is determined by the way that they processes social information. How children process social information, and in particular how children interpret others' intentions (attribution tendencies) has been found to be integral as to whether children are seen as socially competent or socially incompetent (Crick & Dodge, 1994). This link between children's attribution tendencies and social competence is one that has been extensively researched, largely because of longitudinal evidence that suggests a link between children's social adjustment in early childhood and later life difficulties (Parker & Asher, 1987), including mental health problems in adulthood (Kupersmidt, Coie, & Dodge, 1990). Therefore it is imperative to determine the possible influences of children's social information processing, in particular children's attribution tendencies so as to provide psychologists with information that can be used to guide effective prevention and intervention efforts for children's social maladjustment.

Crick and Dodge's (1994) social information processing model has provided the most comprehensive perspective on the link between children's social-cognitions and children's social adjustment. This model postulates that children's social behaviour (and consequently social adjustment) is a product of a sequence of steps of online processing. There are five sequential steps in the information-processing model originally proposed by Dodge (1980). These five steps include a) encoding of social cues, b) interpreting

these social cues, c) generating a variety of responses to the social cues, d) evaluating and selecting a favored response, and e) enacting the selected response. Crick and Dodge (1994) state that deficits or biases encountered in one or more of these five steps will result in maladjusted (aggressive) behaviour.

A central component of social information processing that seems to differentiate maladjusted and well-adjusted children is children's attribution tendencies (how children interpret another's intentions), particularly in response to being negatively provoked. For example, aggressive (aggression being a marker of social incompetence) children are more likely to interpret others' intentions as threatening or hostile in ambiguous social situations in which they have been negatively provoked; whereas socially competent children are more likely to interpret others' intentions as benign in ambiguous social situations in which they have been negatively provoked (Crick & Dodge, 1994).

Most studies that have assessed children's attribution tendencies within the social-information processing framework, have done so by presenting the child with hypothetical scenarios in which another person (the antagonist) negatively provokes the child in such a way that the intent of the antagonist is made unclear to the child. These studies that have assessed children's attribution tendencies using the social information processing framework have demonstrated that maladjusted (aggressive) children exhibit hostile attribution biases in response to ambiguous provocation situations; that is, maladjusted children attribute more hostile intentions to the antagonist in the hypothetical scenarios compared to non-aggressive children (Dodge, 1980; Dodge & Frame, 1982; Feldman & Dodge, 1987; Guerra & Slaby, 1989; Milich & Dodge, 1984).

In general, what the studies investigating attribution tendencies in children show is that socially maladjusted children attribute more hostile intentions to their peers than do more socially competent children. However, although there is no shortage of research on social information processing that has focused on the relationship between children's behaviour and children's attribution tendencies, there have been few studies that have focused on the developmental antecedents of these tendencies.

Most studies that have looked at the development of children's attribution tendencies have focused on the contexts that parents create for their children. In particular it has been found that parents' use of harsh discipline and maternal controlling behaviour are predictive of children's hostile attribution tendencies (Gomez, Gomez, DeMello, & Tallent, 2001; Weiss, Dodge, Bates, & Pettit, 1992). That is, children of parents who use harsh discipline and other negative parenting practices attribute more hostile intentions to others than children of parents who use warm and positive parenting practices. The influence of children's exposure to parents' negative attitudes and behaviours on children's attribution tendencies may be most important to children who are just starting to comprehend how peoples' intentions can cause their actions (Runions & Keating, 2005).

Pears and Moses (2003) suggest that at approximately preschool age (between 4-5 years old) children start to comprehend that people's intentions can cause their actions. Thus it is important for researchers to assess the determinants of attribution tendencies in 4-5 year olds so that researchers can provide recommendations for preventing the development of maladjusted attribution tendencies in children. However, there have been few studies with this age group that have looked at the determinants of children's

attribution tendencies. Because of the importance of determining the influences of preschool children's attribution tendencies and the fact that parenting behaviours and qualities have been linked to children's social competence (Belsky, 1990; Denham et al., 2000; Laird, Pettit, Mize, Brown, & Lindsey, 1994; Mize & Pettit, 1997; Pettit, Harrist, Bates, & Dodge, 1991; Rubin, Burgess, Dwyer, & Hastings, 2003) and children's attribution tendencies (which has also been linked to social competence), researchers have become increasingly interested in whether preschool aged children's attribution tendencies may help to account for the link between early family experiences and children's social competence.

Dodge, Bates, and Pettit (1990) assessed 300 five year old children's processing, family experiences, and social competence. They found that children who were identified as physically maltreated had significantly higher aggression scores and were more biased towards attributing hostile intent to hypothetical social problems than children who were not maltreated. They also found that when social information processing scores were controlled in a regression analysis, maltreatment was no longer a significant predictor of children's social competence. These findings suggest that harsh and abusive early family experiences influences children's development of aggressive, socially incompetent behaviour by altering the ways in which children process social information. This study therefore establishes a link between early family experiences (particularly parental behaviours), children's attributional tendencies, and children's social competence.

Runions and Keating (2005) also examined preschool aged children's attribution tendencies and social competence in relation to parental predictors. They found that a low level of maternal educational achievement was a significant predictor of children's

hostile attribution scores. In addition, preschool children's hostile attribution scores were also found to be significant predictors of their social competence. Specifically, preschool children with higher hostile attribution scores were rated by their mothers and teachers as more aggressive. These results, like Dodge's et al. (1990) study, suggest a link between parenting, children's attribution tendencies, and children's social competence.

Both Dodge's et al. (1990) study and Runions and Keating's (2005) study demonstrated a relationship between parenting, children's attribution tendencies, and children's social competence. However, neither study investigated the exact socialization mechanisms or transmission mediums in which these parenting styles or attributes become related to children's attribution tendencies. One explanation suggested by Runions and Keating (2005) to account for the relationship between mother's educational levels and children's attributional tendencies is that mothers who are better educated may be more likely to discuss with their children other people's intentions. However, the content of parent-child communication was not addressed in their study, and thus this explanation is speculative.

Another line of research that has investigated the relationship between parental predictors, children's attribution tendencies and social competence has specifically looked at mother's attributional tendencies as a medium in which children acquire their attribution tendencies. This line of research has been based on the hypothesis that attribution tendencies may be acquired through maternal modeling. A recent study by MacBrayer, Milich, and Hundley (2003) that tested this hypothesis, found that there was a significant relationship only between mothers' hostile attributions and their aggressive daughters' hostile attributions, and not between mothers and sons. MacBrayer et al.

(2003) suggested that mothers may be modeling a social information processing bias to their daughters by encouraging their daughters to assume the worse in situations, or that by failing to explain to their daughters other peoples' intentions, their daughters jump to hostile conclusions in ambiguous social situations. However, like Runions and Keating's (2005) study, these suggestions are speculative, as they did not directly assess parent-child communication as a possible means by which children may acquire their own attribution tendencies.

Both MacBrayer's et al. (2003) and Runions & Keating's (2005) studies have made reference to the possibility of parent-child communication as a mechanism in which children may acquire their attribution tendencies, which is not surprising as the content of parent-child communication has been strongly linked to children's social competence (Dunn, Bretherton, & Munn, 1987; Dunn, Brown, & Beardsall, 1991; Eisenberg, et al., 1992; Finnie and Russell, 1988; Finnie & Russell, 1990; Gottman, Katz, & Hooven, 1996; Laird et al., 1994; Mize & Pettit, 1997). However, as yet no studies have attempted to link the content of parent-child communication, particularly parent-child communication concerning other people's intentions, with children's attribution tendencies.

One important area of research that may be of value in addressing the development of children's attribution tendencies comes from research investigating parent-child communication in relation to children's social competence. Research emphasizing parent-child communication about peer interactions has shown to be related to children's social competence. For example, Finnie and Russell (1988) investigated whether differences in how mothers assisted their children in peer relationships (in terms of giving their children

advice and guidance) were related to differences in children's social skills. They found that mothers of high social status (i.e., popular) children were more likely to help their children understand social situations and the effects of their behaviour on others than those mothers of low social status (i.e., unpopular) children. Finnie and Russell (1988) suggested that the quality of the content of mother-child conversations regarding peer interactions (particularly giving instructions and coaching) is vital to children's social competence.

A study by Mize and Pettit (1997) further investigated the role of mothers' social coaching, and in addition addressed whether the quality of the parent-child relationship (e.g., harsh or warm parenting) was more or less significant as a transmission medium for the acquisition of children's social competence than the message (i.e., content) contained in specific episodes of coaching. One aspect of social coaching that this particular study assessed was *social framing*. *Social framing* in this study referred to the extent to which mothers expressed non-hostile attributions and optimistic attitudes to their children when presented with hypothetical scenarios that depicted negative outcomes for their children in peer-interaction situations. Mothers' social framing of the negative outcomes was considered by Mize and Pettit (1997) to be important to children's social competence, given that children who are socially maladjusted display deficits or biases in their interpretation of peer's behaviour (Dodge, Pettit, McClaskey, & Brown, 1986). Despite Mize and Pettit (1997) indicating that social framing was likely to be linked to social competence through social information processing biases, they did not measure children's attribution tendencies.

Mize and Pettit (1997) found that mothers who socially framed other peoples' intentions to their children in a way that was non-hostile (for example, 'they probably accidentally did that') had children who were more socially competent than those parents who explained other people's intentions as deliberate (for example, 'he probably did it because he is mean'). The authors suggested that this finding may indicate that children benefit when mothers give emphasis to the *good* in social relationships. Additionally, it was found that mother's social coaching predicted children's social competence above and beyond that of the parenting styles tested. This demonstrates that the content or message that mothers convey is an important medium in which children acquire social competence.

In a related study, Laird et al. (1994) assessed whether both the content and the *frequency* of naturally occurring parent-child conversations about peers were predictive of children's social competence. The frequency of naturally occurring parent-child conversations about children's peers was assessed by asking mothers to recall how many conversations they had with their children in the past 48 hours concerning their children's relationship with peers; whilst the content was assessed by asking mothers to describe these conversations that they had recalled. They found that the more frequently mothers talked to their children about their peer interactions the more socially competent their children were. In addition, they found that the frequency of conversations containing advice predicted children's social competence beyond the mere frequency of mother-child talk about peers. The authors suggested that advice giving may be an important component of mother-child conversations. This finding is comprehensible given that the frequency of conversations between parents and their children does not necessarily

equate to the content of their conversations being positive and of benefit to children. However, like Finnie and Russell (1988) and Mize and Pettit's (1997) study, Laird et al. (1994) also did not assess children's attribution tendencies, which may be the medium accounting for the seemingly direct relationship between parent-child communication and children's social competence. To be able to address this possibility though, the relationship between parent-child communication and children's attribution tendencies needs to first be established.

The basic principle underlying these studies is parents facilitate or limit their children's acquisition of behavioural and social skills via the particular content of parent-child communication (such as giving advice or talking about others intentions), and the frequency of such parent-child communication regarding socially relevant issues. However, despite these findings, Pettit and Mize's (1997) finding that content of parent-child communication predicted children's social competence over and above parenting style, and the relationship between other more general parental predictors (such as harsh and abusive parenting styles), children's attribution tendencies and social competence, there have been no research studies that have attempted to link parent-child communication and children's attribution tendencies. It is important for researchers to understand the particular socialization mechanisms, such as the content of parent-child communication and the frequency of parent-child communication, that may be associated with children's well-adjusted attribution tendencies so that they may be incorporated into prevention and intervention programs for children's social competence.

The present study attempted to fill this gap in the literature by investigating the relationship between mother's social framing, frequency of mother-child conversations

about peers, and children's attribution tendencies. The following hypotheses were investigated in the present study: 1) the more positive mothers' social framing, the fewer hostile attributions of intent children will make; 2) the more frequently mothers converse with their children about peer interactions the fewer hostile attributions of intent their children will make; and 3) mothers' social framing will make a unique contribution to children's attribution tendencies over and above frequency of mother-child conversations about peers.

Method

Design

The present study used a correlational design. The specific statistical techniques employed in this design were that of the Pearson product-moment correlation and standard multiple regression. In addition to these analyses performed to test the main hypotheses, post-hoc analyses were performed with age and gender as covariates using univariate and multivariate (hierarchical regression) techniques. However, it must be noted that the sample size in the present study is not adequate enough to reliably interpret the results from the hierarchical regressions with three variables, and therefore the results of the post-hoc analyses must be treated with some caution.

Participants

290 letters of informed consent were sent to mothers of preschool aged children from four independent primary schools (three Catholic primary schools and one government primary school). Of the 290 informed consent letters sent, permission to participate in this present study was obtained for 45 preschool children and their mothers.

The children (19 girls and 26 boys) ranged in age from 4.10 to 6.25 years ($M = 5.34$ years). Families were primarily middle class and living in medium socio-economic areas. According to the Australian Bureau of Statistics census data (2001), the areas within which the families were drawn from for the present study mainly consisted of middle income earners averaging from $900 to $1500 income per week. As participants had the same (or very similar) economic status, socio-economic differences were controlled for. However, the limited variability in this sample means that caution must be taken in generalizing the findings from the present study.

Materials

Children's attributions of intent measure. Children's attributions of intent were measured by verbally administering a structured questionnaire to each child. Children were firstly verbally presented with six hypothetical scenarios (refer to Appendix A) in which a negative event occurs to the child due to the action of another child. The intentions of the antagonist in these scenarios were purposefully left ambiguous to ensure variability in the children's responses. For example, if the hypothetical situations clearly presented the antagonist's intentions as being hostile then you would expect all the children to interpret the situation as hostile. After the children were presented with a scenario they were then asked whether the action occurred through intended malice of the antagonist or whether it was an accident (for example, 'was it an accident or did he do it on purpose?'). The answers to these scenarios were coded by giving a score of zero to accidental (benign) attributions and a score of one to hostile attributions made. The scores were then summed to get an overall score frequency across the six scenarios. This method of coding has also been adapted from the National Institute for Child Health and

Human Development (NICHD) Study of Early Childcare (SECC) (as cited in Runions & Keating, 2005).

Four of the scenarios have been adapted from the NICHD-SECC (as cited in Runions & Keating, 2005). An example of one of these four scenarios that was presented to the child is 'pretend that you are eating a snack quietly with some other children. A boy sitting next to you is drinking orange juice. He spills some orange juice all over you. Why do you think it happened?' (refer to Appendix A for all six scenarios). Internal reliability for these four items as assessed by Cronbach's Alpha was .65 in Runions and Keating's (2005) study. Scenarios five and six were new scenarios and as such no reliability or validity measures existed for these two new scenarios. However the two new scenarios were variations of the four scenarios used from NICHD-SECC (as cited in Runions & Keating, 2005). It was hoped that the addition of two new items would improve internal reliability. Cronbach's Alpha for the Children's attribution of intent measure, with the addition of two new items, was .66 for this sample. This reliability value is less than .70, which is the recommended minimum alpha level for research purposes (Kaplan & Saccuzzo, 2001). However, deletion of items did not improve the alpha and therefore all items were retained.

Mothers' social framing. This measure of mothers' social framing was adapted from Mize and Pettit (1997). The same six scenarios that were used in this study to assess children's attribution tendencies were also used to measure mothers' social framing (refer to Appendix B). Mothers were first told that they would be given a series of hypothetical scenarios involving their child in social situations, and to imagine that these situations really happened to their child. Mothers were then asked to: 'pretend that your child has

come home and told you that this has happened to him/her'. Mothers were then presented with the scenarios. After each scenario mothers were instructed 'to make sure your child understands why it happened, how would you explain to your child why this happened?' Mother's responses were scored on a three-point scale for the interpretation, or 'framing' of the event. A score of three was assigned on the framing scale when mothers suggested non-hostile attributions and/or optimistic attitudes regarding the negative outcomes that occurred to their child (for example, 'It was only an accident, and sometimes these things happen'). A score of two was assigned when mothers suggested neither a positive nor a negative interpretation, or an interpretation that contained aspects of both (for example, 'whilst it is not nice for the boy to do that, maybe he doesn't like to play the game'). A score of one was assigned when mothers suggested a deliberate interpretation or a negative/angry reaction to the outcome (for example, 'that kid was very mean for doing that' or 'it was your fault that the other child took your toy'). These scores were then averaged across vignettes to obtain a measure of framing. This coding was adopted from Pettit and Mize's (1997) study in which they obtained a Cronbach Alpha of .95. However, Pettit and Mize used 24 vignettes that were different to the ones used in the present study. Cronbach's Alpha for the measure of mother's social framing was .62 for this sample. This reliability value is also less than .70, which is the recommended minimum alpha level for research purposes (Kaplan & Saccuzzo, 2001). However, deletion of items did not improve the alpha and therefore all items were retained.

Frequency of Mother-Child Conversations about Peers. This measure was adapted from Laird et al. (1994). This measure assessed the frequency of mother-child conversations about peers by asking the mother to recall any conversations she has had

with the child during the past 48 hours concerning the child's relationship with peers. This was scored by totaling the number of conversations mentioned by mothers.

Children's Age and Gender. Information regarding the children's age and gender were also collected. Children's gender was recorded at the outset of their interviews. Information regarding the age of the children was collected verbally from the mothers. These child demographics were collected to control for these variables possible effects, given that there may be differences in boys and girls social information processing (Crick & Grotpeter, 1995), and that it has been suggested older children are more accurate in their information processing than younger children (Pettit, Polaha, & Mize, 2001).

Procedure

School principals were approached to obtain permission to conduct the present research with the preschool students. Each principal was provided with information regarding what questions were going to be asked of the children and how much time it would take to interview each child. If they consented to the study, preschool teachers were then contacted to obtain their permission for the researcher to interview the children in their class during school hours. If both the principal and teacher agreed to allow the participation of their preschool classes in the present study, parent information letters (refer to Appendix C) and parent/child consent forms (refer to Appendix D) were given to the preschool teachers to send home to the mothers.

Each mother who had been given an information letter and consent form pertaining to them and their child's participation in the research, were also provided with a self-addressed envelope (postage paid) so that they could return the consent form to the researcher. The consent forms asked mothers to provide their contact details so that they

could be contacted directly by the researcher to setup a mutually convenient time for their interview.

Once parents returned the consent forms, preschool teachers were contacted to organize appropriate times to interview the children during class time. The interviews for most of the children were conducted at the school (either in the classroom or library) and took approximately 10 to 20 minutes for each child (those children not interviewed at school were interviewed at their home). Before commencing the interview, the researcher recorded the child's gender and then explained to the child that they are going to tell them six stories in which they were the main character, and that they would need to answer a few questions about each story. Once this was established the researcher started the audio-taped interview using the children's attribution measure.

Participating mothers were then contacted so that a convenient time and venue could be organized for their interview (these were done either at their home or the school). These audio-taped interviews lasted approximately 30 to 40 minutes and were conducted during and after school hours, and on school holidays. Once interview dates were organized, mothers completed three parts of the interview. The first part of the interview required them to complete the social framing measure, the second part required mothers to complete the measure of the frequency of mother-child conversations about peers, and the third part involved mothers providing information on their children's ages. The order that the first and second parts of the interview were conducted was counterbalanced so as to eliminate the effects of sequential confounding variables (Martin, 2000).

Results

Data Screening

Prior to analysis, the measures of children's attributions of intent, mother's social framing, and frequency of mother-child conversations about peers were examined for accuracy of data entry, missing values, and fit between their distributions and the assumptions of univariate and multivariate analysis. According to the data screening performed there were no missing values and data was accurately entered.

Three univariate outliers were detected in the frequency of mother-child conversations about peers distribution. The correlation between the frequency of conversations variable and the children's attributions of intent variable was run both with and without the three outliers present. Both analyses were found to be significant and did not differ by a considerable amount. Therefore, all three univariate outliers were retained in the data set and were not transformed.

Pairwise linearity was checked using within-group scatterplots and found to be satisfactory. Using Mahalanobis distance with $p < .001$, no participants were identified as multivariate outliers. Kolmogorov-Smirnov statistics indicated that for all three variables, the assumption of normality was not met ($p < .05$). Both the frequency of conversations and children's attributions of intent variables were positively skewed, whilst the social framing variable was negatively skewed, which was expected with such a homogenous (middle class) sample. Attempted transformations did not decrease the skewness of these variables, and therefore they were not transformed. All raw data used in the analyses are presented in Appendix E.

Descriptive Statistics

The descriptive statistics for the criterion, predictor, and age study variables appear in Table 1.

Table 1

Mean Scores and Standard Deviations for Study Variables

	M	SD	Range
Children's hostile attributions of intent	1.64	1.61	0-6
Mothers' social framing	2.63	.28	1-3
Frequency of mother-child conversations	3.73	2.21	1-10
Age (months)	63.9	7.4	49-75

Univariate Analyses

To test the first two hypotheses, and to explore the relationship between mothers' behaviours (i.e., the two predictor variables), three Pearson product-moment correlations were conducted. The two predictor variables were mothers' social framing and frequency of mother-child conversations about peers. The dependant variable was children's hostile attributions of intent. Scatterplots for all three Pearson product-moment correlations performed suggested that the assumption of linearity and homoscedasticity were satisfactory.

Relations among Measures of Mothers' Behaviour

Patterns of association among the measures of mothers' social framing and mother-child conversations about peers were also examined so as to determine the overlap between these two aspects of mother-child communication. The results show that there is a significant, positive correlation between mothers' social framing and the frequency of

mother-child conversations about peers ($r = .45, p < .01$). The more mothers spoke to their children regarding their children's peer relationships the more likely mothers were to positively socially frame vignettes.

Relations among Mothers' Behaviour and Children's Hostile Attributions of Intent

The results show that there was a significant, negative correlation between mothers' social framing and children's hostile attributions of intent ($r = -.54, p < .01$). Children whose mothers socially framed the vignettes more positively made fewer hostile attributions of intent. The results also show that there was a significant, negative correlation between frequency of mother-child conversations about peers and children's hostile attributions of intent ($r = -.47, p < .01$). Children whose mothers more frequently talked to them about peer relationships made fewer hostile attributions of intent.

Regression analysis: Unique contributions of mothers' social framing and frequency of mother-child conversations about peers. Because both mothers' social framing and frequency of mother-child conversations about peers were significantly correlated with children's hostile attributions of intent, it was possible that one of these measures may be accounting more for children's hostile attributions of intent, and in doing so be a more important predictor of children's attribution tendencies. Therefore a standard multiple regression was performed to examine whether social framing and frequency of conversations made unique contributions to the prediction of children's attribution tendencies.

For the standard multiple regression, the assumptions of linearity, homoscedasticity of residuals, multicollinearity and singularity were deemed satisfactory for all variables. With the use of a $p < .001$ criterion for Mahalanobis distance no multivariate outliers

among the cases were identified, $N = 45$. The results of this standard multiple regression suggested that both mothers' social framing and frequency of mother-child conversations about peers together explain 32.4% of the variance in children's hostile attributions of intent, $F(2, 42) = 10.063, p < .01$. However, examination of the coefficients indicated that with both predictor variables entered into the regression equation, only mothers' social framing was a significant predictor of children's hostile attributions of intent ($B = -2.57$, $SE = .81$, $p < .01$), and therefore carries greater weight in the prediction of children's attribution tendencies than does frequency of mother-child conversations about peers ($B = -.15$, $SE = .10$, *n.s.*).

Post-Hoc Analyses

Is there a gender and age effect accounting for relationship between mothers' social framing and children's attribution tendencies? Although not part of the main analyses, post-hoc analyses were first performed to test whether the relationship between mothers' social framing and children's attribution tendencies may be a function of children's gender and age. To firstly examine univariate relationships of gender with all the key study variables, independent sample t-tests were calculated to compare boys ($n = 26$) and girls ($n = 19$) on measures of mothers' social framing, frequency of mother-child conversations about peers, and children's hostile attributions of intent. With equality of variance assumed ($p > .05$), there was no difference between boys and girls on measures of mothers' social framing and frequency of conversations. However, with the assumption of equality of variance violated ($p < .05$), there was a difference between boys and girl for children's attribution tendencies ($t = 2.57$, $p < .05$). Specifically,

children's hostile attributions of intent scores were higher for boys ($M = 2.12$) than for girls ($M = 1.00$).

To test for the effect of age a two-tailed Pearson product-moment correlation was conducted between age and children's attribution tendencies. With the assumptions of correlation satisfactorily met, there was no significant relationship between age and children's attribution tendencies ($r = -.11$, *n.s.*). To investigate gender and age further, as potential confounding variables, hierarchical multiple regression analyses were performed on both variables.

Hierarchical multiple regression analyses: Does mother's social framing and frequency of mother-child conversation predict children's attribution tendencies over and above gender and age? Hierarchical regression analyses were next performed separately with children's gender and age entered on step one as a covariate, to ensure that these variables were not accounting for the significant association found between mother's social framing and children's attribution tendencies. For both hierarchical regression analyses performed, the assumptions of linearity, homoscedasticity of residuals, multicollinearity and singularity were deemed satisfactory for all variables. With the use of a $p < .001$ criterion for Mahalanobis distance no multivariate outliers among the cases were identified, $N = 45$. For the first hierarchical regression analysis, gender was entered on the first step and was a significant predictor of children's hostile attributions of intent ($B = -1.11$, $SE = .46$, $p < .05$). Mothers' social framing and frequency of mother-child conversations about peers were entered next, significantly improving model fit F (2, 41) $= 8.49$, $p < .01$, by making a significant unique contribution of 25.8% ($R^2 = .258$) of the variance in children's hostile attributions of intent over and above gender. Mothers'

social framing appeared to account for this improvement in model fit (B = -2.52, SE = .79, $p < .01$), with frequency of mother-child conversations about peers not a significant predictor, and gender no longer being a significant predictor (B = -.77, SE = .41, $p > .05$) of children's attribution tendencies on the second step.

For the second hierarchical regression analysis, age was entered on the first step and was not found to be a significant predictor of children's hostile attributions of intent (B = -.04, SE = .03; *n.s.*). Mothers' social framing and frequency of mother-child conversations about peers were entered next, significantly improving model fit F (2, 41) = 10.47, $p < .01$. Mothers' social framing appeared to account for this improvement in model fit (B = -2.78, SE = .83, $p < .01$), and frequency of mother-child conversations was not a significant predictor of children's hostile attribution tendencies. Therefore, the results of both hierarchical regression analyses suggested that the significant effect of mothers' social framing was independent of both children's age and gender, and therefore mothers' social framing is related to children's attribution tendencies beyond the confounds of age and gender. However, this must be interpreted with some caution given the small sample size. The ideal number of participants for a hierarchical multiple regression using three predictor variables is 60 (20 times more cases than predictors) (Coakes & Steed, 1997). Computer printouts for all statistical analyses are presented in Appendix F.

Discussion

The current study sought to contribute to the social information processing literature by exploring mothers' social framing and frequency of mother-child conversations about peers as predictors of children's attribution tendencies, which has until now not been

empirically examined. The present study highlights the importance of mothers' social framing as a determinant of children's attribution tendencies. Overall, the results of this study provide support for the content of mother-child communication as a specific socialization mechanism that is associated with children's attribution tendencies. Although the sample size was not adequate to be confident, there was some evidence to suggest that this relationship holds up after controlling for age and gender. However, it must be noted that the findings are preliminary.

This research makes several contributions to our understanding of the particular socialization mechanisms associated with preschool children's attribution tendencies. First, as hypothesized, mother's social framing was associated with preschool children's attribution tendencies. Specifically, the more positive the mothers' social framing the fewer hostile attributions of intent children made. This suggests that how mothers' explain ambiguous social events and other peoples' intentions to their children influences their children's perceptions of social situations and in particular, of other peoples' intentions.

Second, as hypothesized, children whose mothers more frequently talked to them about peer relationships made fewer hostile attributions of intent. This suggests that the frequency of such conversations is an important factor associated with children's interpretations of social events and of other peoples' intentions. However, when both mothers' social framing and frequency of mother-child conversations about peers were examined in a multiple regression analysis, frequency of mother-child conversations about peers was no longer a significant predictor of children's attribution tendencies, and therefore may be considered a redundant variable. This is related to the significant

correlation found between mothers' social framing and frequency of mother-child conversations, and suggests that even though mothers' who have more positive social framing, also tend to have more conversations with their children about peers, it is the content of the conversations that is the key in predicting children's attribution tendencies. Therefore, also as hypothesized, mothers' social framing is a more important predictor of children's attribution tendencies than the frequency of mother-child conversations about peers.

The overall pattern of findings suggest that mothers' social framing is an important predictor of children's attribution tendencies. In particular mothers that are more positive in their social framing of negative social events have children that are making less hostile attributions of intent, and thus mothers' positive social framing may be associated with children having and developing well adjusted attribution tendencies. There are several explanations for this finding. One explanation is that mothers who emphasize the '*good*' in social relationships and in other people, may transmit this attitude through their positive explanations of other peoples' intentions and negative social events, thereby promoting their children to more accurately interpret ambiguous social situations. Conversely, mothers who focus more on, or emphasize the negative or '*bad*' in social relationships and in other people, may transmit this attitude through their negative and hostile explanations of other peoples' intentions and negative social events, thereby promoting their children to develop a hostile attribution bias, and to perceive other people as having malicious intent in ambiguous social situations where there is none. In this sense, mothers may encourage their children to assume the worst in ambiguous social situations.

An alternative explanation for this result, given the correlational nature of this study, is that it may be possible that children's characteristics elicit certain kinds of parental behaviours. For example, it may be that children who attribute more hostile attribution tendencies in ambiguous social situations experience more aggressive or negative encounters in peer contexts and at home (with siblings and/or parents), and therefore mothers of these children may explain ambiguous negative social situations involving their children in a more negative way. Whereas, children who attribute less hostile intentions in ambiguous social situations, may experience less aggressive or negative encounters with others both in peer and home contexts, and therefore these parents may explain ambiguous negative social events involving their children in a more positive way. Although this possibility cannot be ruled out, and it is acknowledged that children bring their own individual characteristics to all of their social relationships, this discussion will be more inclined toward a socialization perspective, as parenting styles and characteristics have been found to influence children's social information processing after controlling for child factors (Dodge, Pettit, Bates, & Valente, 1995), and the focus here is on the determinants and influences of children's attribution tendencies and the mechanisms that may serve to modify them.

Although the present finding of mothers' social framing being associated with children's attribution tendencies is the first time that this relationship has been established, there are past theories and research that not only can further support and validate this current finding, but also provide some direction to the role that children's attribution tendencies may play in the already established relationship between mothers' social framing and children's social competence. For example, the work and theory of

Vygotsky (1978) supports the role of parent-child communication in shaping children's social-cognitive development. Specifically, Vygotsky (1978) proposed that language is the most important tool that influences the development of children's social cognitions, and argued that children internalize conversations had with adults. Therefore, in the context of children's attribution tendencies and mothers' social framing, children internalize the messages and meanings from the early conversations parents have with them about other peoples' intentions and why negative social events may occur, which in turn influences children's perceptions of other people's intentions in negative social situations and their attribution tendencies. This helps to validate the earlier suggestion made that mothers' who explain other peoples' intentions (in the context of a negative ambiguous social event) in a more positive way, may be transmitting this attitude to their children, who in turn make fewer hostile attributions towards others in relation to negative ambiguous social events.

The present finding of mothers' social framing being associated with children's attribution tendencies also adds to Mize and Pettit's (1997) previous research that looked at mothers' social framing and children's social competence. Mize and Pettit's (1997) research found that there was a positive relationship between mothers' social framing and children's social competence. Together both the present study's findings and Mize and Pettit's (1997) findings, along with the fact that children's attribution tendencies are also related to children's social competence (Dodge, 1980; Dodge & Frame, 1982; Feldman & Dodge, 1987; Guerra & Slaby, 1989; Milich & Dodge, 1984), may provide some support for the proposal that children's attributional processes mediate the link between early family experiences (including interactions with parents) and children's later social

adjustment (Pettit, Polaha, & Mize, 2001). The implications of this for Mize and Pettit's (1997) study is that there may not be a direct link between children's social competence and mothers' social framing, rather it may be that mothers' social framing and more general measures of parental behaviours influence or alter the ways in which children process social information, which in turn influences children's behaviour and social competence. There is research evidence by Dodge et al. (1990) that demonstrates the utility of children's attribution tendencies as mediators of the relationship between early family experience and children's social competence. However, the present study did not assess children's social competence and therefore this explanation of attribution tendencies being the mediational link between mothers' social framing and children's social competence is speculative.

In addition to Mize and Pettit's (1997) study, the current findings also contribute to previous studies that have only looked at general parenting styles or characteristics in relation to children's attribution tendencies. For example, past studies that have focused solely on general parental behaviours and qualities in relation to children's attribution tendencies such as Runions and Keating's (2005) study, which looked at maternal education levels, and MacBrayer's et al. (2003) study, which looked at mothers' hostile attributions tendencies, were unable to identify the specific mechanisms that may be accounting for how these general qualities of parents may become related to children's attribution tendencies. Therefore the results from the present study may help to account for these previous relationships found between general parental qualities and children's attribution tendencies by identifying a specific socialization mechanism (i.e., mothers' social framing) that directly influences children's attribution tendencies. In addition, both

Runions and Keating's (2005) and MacBrayer's et al. (2003) studies suggested that parent-child communication involving the explanation of other peoples' intentions may be the mechanism that accounts for the relationships found. The results of the present research provide support for both these studies suggestions that parent-child communication involving the explanation of other peoples' intentions may be the mechanism that accounts for the relationships found between general parental qualities and children's attribution tendencies. It may be the case that these more general qualities of parenting such as maternal education may be related to whether mothers' engage in this type of communication with their children. However, more research is needed in this area to test the credence of this hypothesis.

Although the frequency of mother-child conversations about peers was not a significant predictor of children's attribution tendencies, the potential role that it plays in children's attributions of intent must not be downplayed. Frequency of mother-child conversations may be an important mechanism in which mothers' social framing becomes related to children's attribution tendencies, given that in the current study the frequency of these conversations were significantly correlated with mothers' social framing. This suggestion can be supported by the concept of latent structures, which are part of the social information processing model (Crick & Dodge, 1994). Latent structures are enduring mental processes that are created by people's past experiences, which in turn, influences their future social information processing, type of attributions made, and behaviour (Crick & Dodge, 1994). In particular, latent structures become chronically accessible in people due to them repeatedly experiencing particular social behaviours (such as aggressiveness or kindness) (Graham & Hudley, 1994; Pettit et al., 2001).

In applying this concept of chronically accessible constructs to the present findings, it may be that the mothers who are more positive in their social framing and converse more with their children about peers have and take more opportunities to express this positive social framing, and consequently these children develop a chronically accessible construct that guides these children to infer others' intentions as accidental in ambiguous social situations. This may suggest that frequency of mother-child communication plays an indirect role in children's attribution tendencies. However this explanation, does not hold for children who had higher hostile attribution scores, as mothers whose social framing was more negative also conversed less frequently with their children about peers. However, it must be noted that children are socialized in contexts outside of peer interactions, and it may be that at home these children's experiences involve being repeatedly exposed to parents blaming others or explaining ambiguous social situations in a negative manner that do not involve these children's peer interactions. However, this study did not look at mother-child communication outside the context of peer interactions and therefore this explanation is speculative.

Limitations

The present research had several limitations and therefore conclusions drawn from this study should be considered tentative. A notable limitation of the present study is the use of a correlational design. As a non-experimental study, statements about causality cannot be made. This leaves open the possibility that other factors may be accounting for the present findings, such as child characteristics.

Additionally, The use of the hierarchical regression analyses must be considered exploratory because of the small number of participants relative to the number of

predictors, and therefore this study could not reliably control for children's age and gender. A larger sample size would have increased the predictive reliability of the hierarchical regression analysis.

Another limitation of the present study is that the distributions for mothers' social framing, frequency of mother-child conversations about peers, and children's attribution tendencies were all skewed. Therefore, the current study's results may be less reliable than if these variables were all normally distributed. However, it must be emphasized that this limitation is not unique to the current study, and that most research looking at children's attribution tendencies in a general population are going to encounter this problem.

It should also be noted that the present study relied on a small, homogonous sample comprising mainly of white, middle-class mothers and children. Therefore, the results cannot be generalized to mothers and children from other cultures and economic groups. This is with good basis, as there is empirical evidence to suggest that the content and structure of parent-child communication differ between cultures (Miller, Fung, & Mintz, 1996) and between economic groups (Hoff, 2003).

Future Research

Given the importance of finding a relationship between mothers' social framing and preschool children's attribution tendencies for both policy makers and psychologists in developing preventative programs for children's social maladjustment, the limitations of the current study, and the fact that this is the first time such a study has been carried out, there is no shortage of possible suggestions for future research. As such, the following

proposals for future research are some of the more pertinent that need to be explored, given the current studies findings and limitations.

Future research needs to examine mother-child communication and children's attributions of intent in experimental designs so that the limitations encountered in correlational designs may be avoided. In addition, future studies need to use larger sample sizes and also control for child characteristics that may elicit certain parental behaviours, so that the influence of parent-child communication and other parental factors on children's attribution tendencies can become more comprehensible.

Future research addressing both mothers' social framing and children's attribution tendencies need to also use more heterogeneous samples, and include mothers and children of differing economic and ethnic groups, so as to test the universality of the current findings. Furthermore, looking at broader parenting factors such as maternal education, in addition to mothers' social framing, would provide essential information as to the parental characteristics that may be present and associated with mothers engaging in more positive or more negative social framing.

In addition, future research should examine the relationship between mothers' social framing, children's attribution tendencies, and children's social competence. Examining all three variables together would allow for the mediational hypothesis of children's attribution tendencies to be directly tested, so that the processes in which mothers' social framing becomes related children's social competence can be better understood.

Conclusions and Implications

In conclusion, the results of this study provide preliminary support for mothers' social framing being a specific socialization mechanism that is associated with children's attribution tendencies. Children whose mothers' social framing of ambiguous, negative social events is more positive, make fewer hostile attributions of intent. Although frequency of mother-child conversations about peers was not a significant predictor of children's attribution tendencies, it was related to mothers' social framing and therefore may play an indirect role in children's attribution tendencies.

Despite the limitations, this study is the first to test the relationship between mother-child communication and children's attribution tendencies, and therefore offers preliminary findings for future research endeavors. Further research is required with larger and more diverse samples to replicate and explicate the current finding of the relationship between mothers' social framing and children's attribution tendencies before any policy implications can be drawn. However, if the current finding holds with larger and more diverse samples, the concept of mothers' social framing should be considered in the development of effective prevention programs for children's social maladjustment.

References

Australian Bureau of Statistics (2001). *Census data: Basic community profile.* Canberra, Australian Capital Territory: Author.

Belsky, J. (1990). Parental and non-parental child care and children's socioemotional development: A decade in review. *Journal of Marriage and the Family, 52,* 885-903.

Coakes, S. J., & Steed, L. G. (1997). *SPSS: Analysis without anguish.* Brisbane: Wiley.

Crick, N., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms of children's social adjustment. *Psychological Bulletin, 115,* 74-101.

Crick, N., & Grotpeter, J. (1995). Relational aggression, gender, and social psychological adjustment. *Child Development, 66,* 710-722.

Denham, S. A., Workman, E., Cole, P. M., Weissbrod, C., Kendziora, K. T., & Zahn-Waxler, C. (2000). Prediction of externalizing behaviour problems from early to middle childhood: The role of parental socialization and emotion expression. *Development and Psychopathology, 12,* 23-45.

Dodge, K. A. (1980). Social cognition and children's aggressive behaviour. *Child Development, 51,* 162-170.

Dodge, K. A., Bates, J. E., & Pettit, G. S. (1990). Mechanisms in the cycle of violence. *Science, 250,* 1678-1683.

Dodge, K. A., & Frame, C. L. (1982). Social cognitive deficits and biases in aggressive boys. *Child Development, 53,* 620-635.

Dodge, K. A., Pettit, G. S., Bates, J. E., & Valente, E. (1995). Social information

processing patterns partially mediate the effect of early physical abuse on later conduct problems. *Journal of Abnormal Psychology, 104,* 632-643.

Dodge, K. A., Pettit, G. S., McClaskey, C., & Brown, M. (1986). Social competence in children. *Monographs of the Society for Research in Child Development, 51,* 58-70.

Dunn, J., Bretherton, I., & Munn, P. (1987). Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23,* 132-139.

Dunn, J., Brown, J., & Beardsall, L. (1991). Family talk about feeling states and children's understanding of others' emotions. *Child Development, 27*, 448-455.

Eisenberg, N., Fabes, R. A., Carlo, G., Troyer, D., Speer, A. L., Karbon, M., & Switzer, G. (1992). The relations of maternal practices and characteristics to children's vicarious emotional responsiveness. *Child Development, 63,* 583-602.

Feldman, E., & Dodge, K. A. (1987). Social information processing and sociometric status: Sex, age, and situational effects. *Journal of Abnormal Child Psychology, 15,* 211-227.

Finnie, V., & Russell, A. (1988). Preschool children's social status and their mother's behaviour and knowledge in the supervisory role. *Developmental Psychology, 24,* 789-801.

Finnie, V., & Russell, A. (1990). Preschool children's social status and maternal instructions to assist group entry. *Developmental Psychology, 26,* 603-611.

Gomez, R., Gomez, A., DeMello, L., & Tallent, R. (2001). Perceived maternal control and support: Effects on hostile biased social information processing and aggression among clinic-referred children with high aggression. *Journal of*

Child Psychology, Psychiatry and Allied Disciplines, 42, 513-522.

Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10,* 243-268.

Graham, S., & Hudley, C. (1994). Attributions of aggressive and nonaggressive African American male early adolescents: A study of construct accessibility. *Developmental Psychology, 30,* 365-377.

Guerra, N. G., & Slaby, R. G. (1989). Evaluative factors in social problem solving by aggressive boys. *Journal of Abnormal Child Psychology, 17,* 277-289.

Hoff, E. (2003). Causes and consequences of SES-related differences in parent-to-child speech. In M. H. Bornstein, & R. H. Bradley (Eds.) *Socioeconomic status, parenting, and child development* (pp. 147-160). New Jersey: Lawrence Erlbaum Associates.

Kaplan, R. M., & Saccuzzo, D. P. (2001). *Psychological testing: Principles, applications & issues* (5th ed.). Belmont: Wadsworth.

Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of poor peer relationships in the development of disorder. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 274-305). Cambridge, UK: Cambridge University Press.

Laird, R. D., Pettit, G. S., Mize, J., Brown, E., & Lindsey, E. (1994). Mother-child conversations about peers: Contributions to competence. *Family Relations, 43,* 425-432.

MacBrayer, E., Milich, R., & Hundley, M. (2003). Attributional biases in aggressive children and their mothers. *Journal of Abnormal Psychology, 112,* 698-708.

Martin, D. W. (2000). *Doing psychological experiments* (5th ed.). Belmont: Wadsworth.

Milich, R., & Dodge, K. A. (1984). Social information processing patterns in child psychiatric populations. *Journal of Abnormal Child Psychology, 12,* 171-189.

Miller, P., Fung, H., & Mintz, J. (1996). Self-construction through narrative practices: A Chinese and American comparison of early socialization. *Ethos, 24*, 237-280.

Mize, J., & Pettit, G. S. (1997). Mother's social coaching, mother-child relationship style, and children's peer competence: Is the medium the message? *Child Development, 68,* 312-332.

Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low accepted children at risk? *Psychological Bulletin, 102,* 357-389.

Pears, K. C., & Moses, L. J. (2003). Demographics, parenting, and theory of mind in preschool children. *Social Development, 12,* 1-19.

Pettit, G. S., Harrist, A. W., Bates, J. E., & Dodge, K. A. (1991). Family interaction, social cognition and children's subsequent relations with peers at kindergarten. *Journal of Social and Personal Relationships, 8,* 383-402.

Pettit, G. S., Polaha, J. A., & Mize, J. (2001). Perceptual and attributional processes in aggression and conduct problems. In J. Hill & B. Maughan (Eds.), *Conduct disorders in childhood and adolescence* (pp. 292-319). New York: Cambridge University Press.

Rubin, K. H., Burgess, K. B., Dwyer, K. M., & Hastings, P. D. (2003). Predicting preschoolers' externalizing behaviours from toddler temperament, conflict, and maternal negativity. *Developmental Psychology, 39,* 1614-1629.

Runions, K. C., & Keating, D. P. (2005). The early development of social information processing: Family antecedents and behavioural consequents. Manuscript submitted for publication.

Vygotsky, L. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.

Weiss, B., Dodge, K. A., Bates, G. E., & Pettit, G. S. (1992). Some consequences of early harsh discipline: Child aggression and a maladaptive social information processing style. *Child Development, 63,* 1321-1335.

Appendix A

Attribution of Intent Questions: Children's

1. Pretend that you are playing with a ball. A boy/girl you know throws the ball and it hits you on the back.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

2. Pretend your mother gives you a brand new truck/doll. You go outside and play with it for a while. Then you go back inside and leave the truck/doll outside. Later, you go outside to get your truck/doll and you can't find it. Then you see another boy/girl playing with your truck/doll.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

3. Pretend you are eating a snack quietly with some other children. A boy/girl sitting next to you is drinking orange juice. He/she spills some orange juice all over you.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

4. Pretend that you are playing with some other kids outside, and you decide to go back inside. You walk by a boy/girl and you trip over his/her leg.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

5. Pretend that you start playing your favourite game with another boy/girl and he/she ruins the game.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

6. Pretend that you are playing in the sand with a shovel. Your mum calls you over and you run to see her. When you come back, another boy/girl is digging in the sand with your shovel.
   Why do you think it happened? Was it an accident or did he/she do it on purpose?

Appendix B

Attribution of Intent Questions: Parent's

Pretend that this has happened to your child and that your child has told you about it

1.) Your son/daughter was playing ball. A boy/girl that he/she knows throws the ball and it hit him/her on the back.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

2.) You gave your son/daughter a brand new truck/doll. he/she went outside and played with it for a while. He/she went back inside and left the truck/doll outside. Later he/she went outside to get his/her truck/doll but he/she couldn't find it. He/she then saw another boy/girl playing with his/her truck/doll.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

3.) Your son/daughter was eating a snack with some other children. A boy/girl sitting next to him/her was drinking some orange juice. He/she spills some of the orange juice all over your son/daughter.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

4.) Your son/daughter was playing with some other kids outside, and then decided to go back inside. Your son/daughter walked by a boy/girl and tripped over his/her leg.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

5.) Your son/daughter was playing his/her favorite game with another boy/girl, and this other boy/girl ruined the game.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

6.) Your son/daughter was playing in the sand with a shovel. One of your son/daughters friends called him/her over and your son/daughter ran over to see his/her friend. When your son/daughter came back another boy/girl was digging in the sand with your son/daughter's shovel.

'to help your child understand why it may have happened, how would you explain to your child why this happened?'

Appendix C

Information Sheet for the Parent/Guardian
(Please keep this information sheet for your own reference)

Dear Parent/Guardian

Hi! My name is Lisa Lemme and I am currently studying my Honours in psychology at Edith Cowan University. I am conducting a study that looks at how children (aged 4-5) think about relationships with other children and how parents talk with their children about these relationships. The aim of this study is to understand how parents can support young children's social skills. This will be helpful for both parents and children, and **it's a great way for you to reflect on your relationship with your child.**

In this study I will need to sit down with you for about 30 minutes (tape recorded so I can listen to it later) and with your child for about 20 minutes (at home or school, also tape-recorded). I will present you and your child with six stories involving challenging social events and will ask several questions about the story. There are no right or wrong answers. It's just about getting a sense of how you and your child might think about and respond to the stories, if they were "for real". **Children find this a fun process, and I think you will find it interesting too**. I will also need you to complete a questionnaire about your child's social skills.

Please be assured that should you choose to join in this study, both you and your child may stop and withdraw from this project at any time, no questions asked. This is part of a wider study, and the information that you and your child give will be held in strict confidence between me, my supervisor, and one other Honours student involved in the project. **It's strictly confidential**. Neither you nor your child will be identified in any way at any time. All information will be reported anonymously. At the completion of this study, a copy of the results will be provided to you if you like. This study has been approved by the Faculty of Community Services, Education and Social Sciences Ethics Committee at Edith Cowan University.

If you have any questions or would like to discuss anything to do with the study, you can contact my supervisor Dr. Kevin Runions on (08) 63045526. If you would like to speak to someone independent of this study, contact the Honours co-ordinator Dr. Julie-Ann Pooley on (08) 63045591.

If you and your child would like to join this study, please complete the attached consent form and **send it in the postage-paid self-addressed envelope *as soon as possible***, so we can set up a meeting time. You and your child's help in this project are greatly appreciated.

Thankyou

Lisa Lemme, B.Sc. (Psychology)

Appendix D

Parent and Child Consent Form
(Please complete and return in the stamped self-address envelope)

Project Coordinator: Lisa Lemme
Project Supervisor: Dr. Kevin Runions

I _____ (the parent/guardian) have read the information provided with this consent form and any questions I have asked have been answered to my satisfaction.

I agree for my child _____ (name) and myself to participate in the activities associated with this research. I understand that I can withdraw at any time, and that there will be no penalty for my child and I should I decide not to participate or stop participating.

I agree that the information provided by my child can be used to complete a student research report that is also part of a wider study and that my child, I and my child's school are not identified in any way.

I agree to being audio taped provided that the tapes are kept in a safe place, only accessible to the researcher, and erased after use.

Parent's Signature _____ Date_____

Home phone number _____

Mobile_____

Appendix E

Raw Data

Participants	Gender	frequency	Attribution tendencies	Mothers' social framing
1	2	5	0	2.83
2	1	3	0	2.83
3	1	1	3	2.83
4	2	4	0	2.83
5	1	1	3	2.5
6	1	3	5	2.33
7	1	4	1	2.83
8	1	3	4	2.17
9	1	1	6	2.17
10	1	4	2	2.17
11	1	2	1	2.83
12	2	2	2	2.5
13	1	3	4	2.83
14	2	2	0	2.83
15	2	4	3	2.17
16	2	1	1	2.67
17	1	1	4	2.67
19	1	6	1	2.67
20	1	1	3	2.33
21	2	6	0	3
22	2	4	1	2.67
23	2	5	0	3
24	1	4	0	2.5
25	1	2	2	2.33
26	1	4	1	2.83
27	2	3	2	2.5
28	1	3	1	2.33
29	1	3	3	2.17
30	1	7	4	3
31	1	2	3	2.5
32	2	5	0	3
33	2	4	3	2.17
34	2	4	3	2.17
35	2	4	0	2.5
36	2	7	0	3
37	2	4	1	2.67
38	2	2	1	2.67
39	1	2	1	2.67
40	1	2	3	2.83
41	1	4	0	2.5
42	1	10	0	3
43	2	10	0	3
44	1	2	0	2.5
45	2	8	2	2.67
46	1	6	0	3

N.B. Gender: 1 = Males; 2 = Females

Appendix F

Analyses

Key: TOTSCORA = children's hostile attributions of intent; TOTSCOSF = Mothers' social framing, FREQUENC = Frequency of mother-child conversations about peers

Correlations

Correlations

		TOTSCORA	TOTSCOSF
TOTSCORA	Pearson Correlation	1	-.540**
	Sig. (1-tailed)	.	.000
	N	45	45
TOTSCOSF	Pearson Correlation	-.540**	1
	Sig. (1-tailed)	.000	.
	N	45	45

**. Correlation is significant at the 0.01 level (1-tailed).

Correlations

Correlations

		TOTSCORA	FREQUENC
TOTSCORA	Pearson Correlation	1	-.404**
	Sig. (1-tailed)	.	.003
	N	45	45
FREQUENC	Pearson Correlation	-.404**	1
	Sig. (1-tailed)	.003	.
	N	45	45

**. Correlation is significant at the 0.01 level (1-tailed).

Correlations: With the three frequency of conversation outliers removed for data screening

Correlations

		frequency	totscorattri
frequency	Pearson Correlation	1	-.391**
	Sig. (1-tailed)		.005
	N	42	42
totscorattri	Pearson Correlation	-.391**	1
	Sig. (1-tailed)	.005	
	N	42	42

**. Correlation is significant at the 0.01 level (1-tailed).

Appendix F

Analyses

Key: totscorattri = children's hostile attributions of intent; frequency = frequency of mother-child conversations about peers; totscosf: Mothers' social framing

Correlations: Between predictor variables

Correlations

		totscosf	frequency
totscosf	Pearson Correlation	1	.452**
	Sig. (1-tailed)		.001
	N	45	45
frequency	Pearson Correlation	.452**	1
	Sig. (1-tailed)	.001	
	N	45	45

**. Correlation is significant at the 0.01 level (1-tailed).

Standard Regression

Correlations

		totscorattri	frequency	totscosf
Pearson Correlation	totscorattri	1.000	-.404	-.540
	frequency	-.404	1.000	.452
	totscosf	-.540	.452	1.000
Sig. (1-tailed)	totscorattri	.	.003	.000
	frequency	.003	.	.001
	totscosf	.000	.001	.
N	totscorattri	45	45	45
	frequency	45	45	45
	totscosf	45	45	45

Appendix F

Analyses

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	totscosf, frequency[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: totscorattri

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.569[a]	.324	.292	1.356

a. Predictors: (Constant), totscosf, frequency

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.031	2	18.516	10.063	.000[a]
	Residual	77.280	42	1.840		
	Total	114.311	44			

a. Predictors: (Constant), totscosf, frequency

b. Dependent Variable: totscorattri

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	8.956	2.005		4.467	.000		
	frequency	-.146	.104	-.200	-1.408	.166	.795	1.257
	totscosf	-2.577	.815	-.450	-3.162	.003	.795	1.257

a. Dependent Variable: totscorattri

Appendix F

Analyses

Key: q1att-q6att = numbered vignettes from 1 to 6 for children's hostile attribution of intent measure

Reliability: Children's Hostile Attributions of Intent Measure

Case Processing Summary

		N	%
Cases	Valid	45	100.0
	Excluded[a]	0	.0
	Total	45	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.665	.661	6

Inter-Item Correlation Matrix

	q1att	q2att	q3att	q4att	q5att	q6att
q1att	1.000	.267	.362	.612	.247	-.061
q2att	.267	1.000	.193	.327	-.024	.361
q3att	.362	.193	1.000	.380	.037	.041
q4att	.612	.327	.380	1.000	.404	.150
q5att	.247	-.024	.037	.404	1.000	.378
q6att	-.061	.361	.041	.150	.378	1.000

The covariance matrix is calculated and used in the analysis.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
q1att	1.44	1.889	.491	.447	.592
q2att	1.42	2.022	.334	.326	.643
q3att	1.40	2.018	.317	.192	.649
q4att	1.24	1.553	.648	.509	.515
q5att	1.22	1.904	.322	.376	.653
q6att	1.49	2.165	.277	.358	.659

Appendix F

Analyses

Reliability: Mothers' Social Framing Measure

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.594	.619	6

Inter-Item Correlation Matrix

	q1sf	q2sf	q3sf	q4sf	q5sf	q6sf
q1sf	1.000	.232	.060	.152	.179	.156
q2sf	.232	1.000	.313	.040	.086	.325
q3sf	.060	.313	1.000	.209	.161	.386
q4sf	.152	.040	.209	1.000	.199	.355
q5sf	.179	.086	.161	.199	1.000	.350
q6sf	.156	.325	.386	.355	.350	1.000

The covariance matrix is calculated and used in the analysis.

Appendix F

Analyses

Correlations: Post-Hoc

Descriptive Statistics

	Mean	Std. Deviation	N
AGE	63.91	7.403	45
TOTSCORA	1.64	1.612	45

Correlations

		AGE	TOTSCORA
AGE	Pearson Correlation	1	-.109
	Sig. (1-tailed)	.	.237
	N	45	45
TOTSCORA	Pearson Correlation	-.109	1
	Sig. (1-tailed)	.237	.
	N	45	45

Hierarchical Regression: Controlling for age, Post-hoc

Descriptive Statistics

	Mean	Std. Deviation	N
TOTSCORA	1.64	1.612	45
AGE	63.91	7.403	45
TOTSCOSF	2.6260	.28138	45
FREQUENC	3.73	2.209	45

Appendix F

Analyses

Correlations

		TOTSCORA	AGE	TOTSCOSF	FREQUENC
Pearson Correlation	TOTSCORA	1.000	-.109	-.540	-.404
	AGE	-.109	1.000	-.131	.119
	TOTSCOSF	-.540	-.131	1.000	.452
	FREQUENC	-.404	.119	.452	1.000
Sig. (1-tailed)	TOTSCORA	.	.237	.000	.003
	AGE	.237	.	.196	.217
	TOTSCOSF	.000	.196	.	.001
	FREQUENC	.003	.217	.001	.
N	TOTSCORA	45	45	45	45
	AGE	45	45	45	45
	TOTSCOSF	45	45	45	45
	FREQUENC	45	45	45	45

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	AGE[a]	.	Enter
2	FREQUENC, TOTSCOSF[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: TOTSCORA

Model Summary

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.109[a]	.012	-.011	1.621	.012	.521	1	43	.475
2	.588[b]	.346	.298	1.350	.334	10.471	2	41	.000

a. Predictors: (Constant), AGE

b. Predictors: (Constant), AGE, FREQUENC, TOTSCOSF

Appendix F

Analyses

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.367	1	1.367	.521	.475[a]
	Residual	112.944	43	2.627		
	Total	114.311	44			
2	Regression	39.553	3	13.184	7.231	.001[b]
	Residual	74.758	41	1.823		
	Total	114.311	44			

a. Predictors: (Constant), AGE

b. Predictors: (Constant), AGE, FREQUENC, TOTSCOSF

c. Dependent Variable: TOTSCORA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.166	2.123		1.491	.143
	AGE	-.024	.033	-.109	-.721	.475
2	(Constant)	11.525	2.959		3.895	.000
	AGE	-.033	.028	-.153	-1.176	.246
	TOTSCOSF	-2.780	.829	-.485	-3.352	.002
	FREQUENC	-.121	.105	-.166	-1.148	.258

a. Dependent Variable: TOTSCORA

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	TOTSCOSF	-.564[a]	-4.413	.000	-.563	.983
	FREQUENC	-.396[a]	-2.794	.008	-.396	.986

a. Predictors in the Model: (Constant), AGE

b. Dependent Variable: TOTSCORA

Appendix F

Analyses

Hierarchical Regression: Controlling for gender, Post-hoc

Descriptive Statistics

	Mean	Std. Deviation	N
TOTSCORA	1.64	1.612	45
GENDER	1.42	.499	45
TOTSCOSF	2.6260	.28138	45
FREQUENC	3.73	2.209	45

Correlations

		TOTSCORA	GENDER	TOTSCOSF	FREQUENC
Pearson Correlation	TOTSCORA	1.000	-.346	-.540	-.404
	GENDER	-.346	1.000	.155	.269
	TOTSCOSF	-.540	.155	1.000	.452
	FREQUENC	-.404	.269	.452	1.000
Sig. (1-tailed)	TOTSCORA	.	.010	.000	.003
	GENDER	.010	.	.155	.037
	TOTSCOSF	.000	.155	.	.001
	FREQUENC	.003	.037	.001	.
N	TOTSCORA	45	45	45	45
	GENDER	45	45	45	45
	TOTSCOSF	45	45	45	45
	FREQUENC	45	45	45	45

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	GENDER[a]	.	Enter
2	TOTSCOSF, FREQUENC[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: TOTSCORA

Appendix F

Analyses

Model Summary[c]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.346[a]	.119	.099	1.530	.119	5.834	1	43	.020
2	.614[b]	.377	.332	1.318	.258	8.486	2	41	.001

a. Predictors: (Constant), GENDER

b. Predictors: (Constant), GENDER, TOTSCOSF, FREQUENC

c. Dependent Variable: TOTSCORA

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.657	1	13.657	5.834	.020[a]
	Residual	100.654	43	2.341		
	Total	114.311	44			
2	Regression	43.125	3	14.375	8.279	.000[b]
	Residual	71.186	41	1.736		
	Total	114.311	44			

a. Predictors: (Constant), GENDER

b. Predictors: (Constant), GENDER, TOTSCOSF, FREQUENC

c. Dependent Variable: TOTSCORA

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.231	.695		4.647	.000
	GENDER	-1.115	.462	-.346	-2.415	.020
2	(Constant)	9.744	1.993		4.890	.000
	GENDER	-.774	.413	-.240	-1.873	.068
	TOTSCOSF	-2.520	.792	-.440	-3.181	.003
	FREQUENC	-.102	.103	-.140	-.989	.329

a. Dependent Variable: TOTSCORA

Appendix F

Analyses

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	TOTSCOSF	-.499[a]	-4.000	.000	-.525	.976
	FREQUENC	-.335[a]	-2.373	.022	-.344	.928

a. Predictors in the Model: (Constant), GENDER

b. Dependent Variable: TOTSCORA

T-Test: Post-hoc

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
totscosf	male	26	2.5892	.27880	.05468
	female	19	2.6763	.28453	.06528

Independent Samples Test

		Levene's Test for uality of Varianc		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	ig. (2-tailed	Mean ifference	Std. Error ifference	Lower	Upper
totsco:	Equal varia assumed	.289	.593	-1.026	43	.311	-.08709	.08487	-.25825	.08408
	Equal varia not assume			-1.023	38.480	.313	-.08709	.08515	-.25939	.08522

Appendix F

Analyses

T-TestPost-Hoc

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
frequency	male	26	3.23	2.122	.416
	female	19	4.42	2.194	.503

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
frequenc	Equal variances assumed	.014	.906	-1.832	43	.074	-1.190	.650	-2.501	.120
	Equal variances not assumed			-1.822	38.183	.076	-1.190	.653	-2.512	.132

T-Test: Post-Hoc

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
totscorattri	male	26	2.12	1.751	.343
	female	19	1.00	1.155	.265

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
totscore	Equal variances assumed	6.098	.018	2.415	43	.020	1.115	.462	.184	2.047
	Equal variances not assumed			2.572	42.637	.014	1.115	.434	.241	1.990